

REMARKS

Claims 1-22 are pending in the application, are rejected, and are at issue.

The application relates generally to a method and apparatus for interfacing a transducer element to a communication network. The method comprises providing an adaptable transducer interface comprising a programmable transducer interface controller for connecting to the transducer element and a programmable network interface controller for connecting to the communication network. The transducer interface controller is operatively connected to the network interface controller. User selectable transducer information is received identifying operating characteristics of the transducer element. User selectable operator interface information is received identifying display parameters interactively arranged for displaying operating data of the transducer element. A transducer interface program is generated for converting transducer operating characteristics to user data and the transducer interface program is stored in the transducer interface controller. A network interface program is generated based on the display parameters for creating screen displays using the user data. The network interface program is stored in the network interface controller. The adaptable transducer interface is useable to remotely interface with the transducer element over the communication network.

More particularly, as described in the above-referenced application, an adaptable transducer interface unit acts as a general purpose interface unit and enables conventional transducers, e.g., sensors and actuators, to exhibit the properties of a smart transducer without customizing the transducer during the manufacturing process. This transforms an ordinary transducer into a smart transducer without performing generally required microelectronic integration. Contrary to the teachings of various standards and conventional wisdom “smart”

features do not have to be designated at the factory and developed as custom application specific integrated circuits or as hybrid circuit approaches.

There are new and unexpected impacts of the transducer interface to smart transducer technology. Deploying relatively small quantities of smart transducers is no longer economically or technically prohibited. For technologies that are amenable to electronic integration, this provides a less costly alternative to providing smart transducers without the need for developing custom integrated microelectronic devices requiring a substantial commitment of financial resources. Without consideration of financial issues, some sensor and actuator technologies are not amenable to microelectronic integration. Either the technology used to manufacture the transducer element is not compatible with silicon microelectronic integration technology or the transducer operating environment is not compatible with silicon microelectronic technology.

None of the cited references separately or in combination disclose or suggest Applicant's invention.

Applicant traverses the rejection of claims 1, 2, 6, 7, 13, 16, 17 and 21 as anticipated by Gavin U.S. Patent No. 6,272,447.

Claim 1 specifies the method of interfacing a transducer element to a communication network comprising: providing an adaptable transducer interface comprising a programmable transducer interface controller for connecting to the transducer element and a programmable network interface controller for connecting to the communication network, the transducer interface controller being operatively connected to the network interface controller; receiving user selectable transducer information identifying operating characteristics of the transducer element; receiving user selectable operator interface information identifying display parameters interactively arranged for

displaying operating data of the transducer element; generating a transducer interface program for converting transducer element operating characteristics to user data and storing the transducer interface program in the transducer interface controller; and generating a network interface program based on the display parameters for creating screen displays using the user data and storing the network interface program in the network interface controller, the adaptable transducer interface being useable to remotely interface with the transducer element over the communication network.

Gavin is not remotely relevant to the claimed invention. Gavin, in Fig. 16, discloses a roll forming machine under control of a computer 151. The computer 151 is connected to an encoder 152, a motor controller 153, position sensors 154 and solenoids 155. There is no disclosure or suggestion of a programmable transducer interface for connecting to any of the elements 152-154. The addition of such an interface serves no purpose. The parameters to interpret raw data and to control cutting/forming machines will be set in advance in the computer. Gavin does not disclose or suggest any communication network. It discloses a single personal computer for controlling the machine. The personal computer does not connect to any network. Even if the personal computer did connect to a network, it still would not result in the claimed invention. The remaining steps are clearly not present.

With respect to receiving user selectable transducer information identifying operating characteristics of the transducer element, the action references column 13, lines 1-9. There is no such teaching in the referenced passage. The passage simply identifies the elements shown in Fig. 16. There is no discussion that any user selectable transducer information is received.

With respect to receiving user selectable operating interface information identifying display parameters, the Action references column 7, lines 22-40. This passage discusses Figs. 4-6

which illustrates typical outputs produced by CAD software. This has nothing to do with displaying operating data of a transducer element.

With respect to generating a transducer interface program for converting transducer element operating characteristics to user data and storing the transducer interface program in the transducer interface controller, the action references column 12, lines 33-44. This passage references a flow diagram for a fixed program. The program is for performing a roll forming process. The program does not convert transducer element operating characteristics to user data. It is not even a transducer interface program. It is a program for operating the roll forming process.

With respect to generating a network interface program based on the display parameters for creating screen displaying using the user data and storing the network interface program in a network interface controller, the action references column 7, lines 1-22. This passage discusses Fig. 13 and relates to the process used for constructing a building. It has nothing to do with a network interface program, let alone generating a network interface program, as claimed.

Finally, with respect to an adaptable transducer interface being usable to remotely interface with the transducer element over the communication network, the action references Figure 16 alleged to show a network of communication lines attached to a station for both accepting user input and controlling the transducers. There is no network of communication lines shown. Fig. 16 illustrates wires connecting an encoder, a motor controller, solenoids and position sensors to a computer. It has nothing to do with remotely interfacing with a transducer element over a communication network.

Thus, as is apparent, Gavin is not remotely related to the claimed invention. In fact, the Gavin system cannot be extended to use a communication network and separate the computer

from the sensors and actuators. The computer in Gavin performs closed loop control of a cutting and forming process. This closed loop control process, see column 13, lines 18-41, cannot be performed by a remote computer connected to the sensors through a communication network since the uncertain and variable time delays associated with transmitting position sensor data and cutting actuator commands via communication networks would make the introduction of a communication network to the Gavin system impossible.

Moreover, the Gavin system does not have and does not require programmable transducer interfaces since the transducers are predefined as part of the system. There is no need for compatibility with different types of transducers. In fact, adding programmability would likely cause the system to be non-functional.

As is apparent, Gavin does not disclose each and every element of claim 1, arranged as in the claim. Therefore, there is no anticipation and the rejection is improper. Moreover, because Gavin is not remotely related to claim 1, any obvious rejection would also be improper.

Claims 2, 6, 7 and 13 depend from claim 1 and are believed allowable for the same reasons therefor.

Independent claim 16 specifies a user adaptable transducer interface for interfacing a transducer element having a signal interface connection to a communication network. The interface comprises a programmable transducer interface controller having terminations for connecting to the signal interface connection of the transducer element. A programmable network interface controller connects to the communication network. The network interface controller is operatively connected to the transducer interface controller. A user configured transducer interface program is stored in the transducer interface controller for converting user selected transducer

operating characteristics to user data. A user configured network interface program is stored in the network interface controller for creating screen displays based on user select display parameters using the user data. The programmable network interface controller is connectable to the communication network to provide a remote interface with the transducer element over the communication network.

Claim 16 is not anticipated by Gavin for the same reasons discussed above. Particularly, Gavin does not disclose or suggest a programmable transducer interface controller, a programmable network interface controller, a user configured transducer interface program, or a user configured network interface program. Particularly, it does not disclose or suggest a programmable network interface controller connectable to a communication network to provide a remote interface with a transducer element over a communication network.

For the above reasons, claim 16 and its dependent claims 17 and 21 are not anticipated. Moreover, because Gavin is not remotely related to the claimed invention, any obviousness rejection would also be improper.

For the above reasons, claims 1, 2, 6, 7, 13, 16, 17 and 21 are believed allowable and withdrawal of the rejection is requested.

Applicant traverses the rejection of claims 14, 15 and 24 as obvious over Gavin.

Claims 14 and 15 depend from claim 1 and are believed allowable for the same reasons therefor. Particularly, because Gavin does not suggest the invention defined by claim 1, dependent claims 14 and 15 cannot be obvious over Gavin. Likewise, claim 22 depends from claim 16 and is believed allowable for the same reasons therefor.

For the above reasons, claims 14, 15 and 24 are believed allowable and withdrawal of the rejection is requested.

Applicant traverses the rejection of claims 3-5, 8-12 and 18-21 as obvious over Gavin in view of Yu U.S. Application Publication No. 2002/0095231 A1.

Claims 3-5 and 8-12 depend from claim 1. Claims 18-21 depend from claim 16. The deficiencies with respect to Gavin and independent claims 1 and 16 are discussed above and are not repeated. Yu does not disclose or suggest the deficiencies noted with respect to Gavin.

Yu is directed to an on-line cake design system. It is not apparent how an on-line cake design system is relevant to a roll forming system for building structural members for building construction. Clearly Yu et al is not analogous to Gavin so that there is no basis to even consider combining the references.

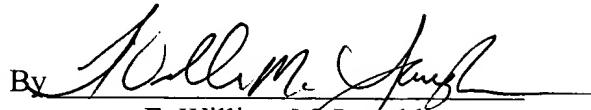
Moreover, the statements equating Gavin with the claims are incorrect for the reasons above. The use of a job interface to select predefined options in combination with any teaching of Gavin would not serve any purpose for operating a roll forming machine for building structural members. As such, even if the references were combined, the combination would not result in the claimed invention.

For the above reasons, claims 3-5, 8-12 and 18-21 are believed allowable and withdrawal of the rejection is requested.

Summarizing, the cited references are not even closely related to the subject matter described and claimed in the above-referenced application. Neither relates to a transducer interface of any sort, let alone an adaptable transducer interface. Both relate to fixed systems for operating with fixed input and output devices.

Reconsideration of the application, allowance and passage to issue are requested.

Respectfully submitted,

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